REMARKS

Claims 1-49 are pending in this Application. By this Amendment, claims 1, 13, and 22-23 have been amended, and new claims 25-49 have been added. No new matter is added.

Support for the new claims may be found at least in the original claims 1-20 and throughout the specification (e.g., Figs. 3-4 and their corresponding descriptions at pages 10-23, etc.). For example, support for "sampling device" and "reconstruction device," as recited in claim 25, may be found at least at page 10, lines 22-28, of the specification.

The Applicants appreciate that the Office Action indicates that claims 2 and 11-12 contain allowable subject matter. As discussed below, however, the Applicants respectfully assert that all pending claims, as amended, define patentable subject matter.

Reconsideration in view of the above amendments and the following remarks is respectfully requested.

I. Formal Matters

A. Objection to the Abstract

The Office Action objects to the abstract based on an informality. The Abstract is amended responsive to the objection. Accordingly, the Applicants respectfully request that the Examiner withdraw the objection to the Abstract.

B. Rejection of Claim 22 Under 35 U.S.C. §101

The Office Action rejects claim 22 under 35 U.S.C. §101 as failing to fall within a statutory category of invention. Claim 22 has been amended to recite "a computer-readable medium," responsive to the rejection.

Support for this amendment may be found at least in the original claim 22, which was directed to a "[c]omputer program product directly loadable into the internal memory of a digital

processing system and comprising software code portions for performing the method of claim 1 when said product is run by said digital processing system." The Applicants submit that the "computer-readable medium" of amended claim 22 corresponds at least to the "internal memory" of original claim 22, and thus, does not constitute new matter.

Accordingly, the Applicants respectfully submit that claim 22 is now directed to statutory subject matter. See MPEP 2106.01. Thus, the Applicants respectfully request that the Examiner withdraw the §101 rejection.

C. Rejection of Claims 23-24 Under 35 U.S.C. §112 and §101

The Office Action rejects claims 23-24 under 35 U.S.C. §112 and §101 as being indefinite and improper because claim 23 does not recite any method steps. Claim 23 is amended responsive to the rejections. Accordingly, the Applicants respectfully request that the Examiner withdraw the rejections under §112 and §101.

II. Claims Define Patentable Subject Matter

The Office Action rejects claims 1, 3-10, 13, 15-16, and 18-21 under 35 U.S.C. §102(e) as being anticipated by Miller (U.S. Patent No. 6,834,073); and rejects claims 14 and 17 under 35 U.S.C. §103(a) as being unpatentable over Miller in view of Absar (U.S. Patent No. 7,177,812). To the extent that these rejections remain applicable to the claims, as amended, the Applicants respectfully traverse these rejections, as follows.

The Applicants disclose a novel and unobvious approach for reconstructing signals that are sent over a channel. For example, in accordance with an embodiment of the disclosure, a device may reconstruct a first signal by sampling a second signal at a sub-Nyquist rate and at uniform intervals, generating a set of sampled values from the sampled signal, and retrieving

from the set of sampled values a set of shifts and weights with which said first signal can be reconstructed.

Amended claim 1 recites, *inter alia*, "Reconstruction method for <u>reconstructing a first signal (x(t)) from a set of sampled values ($y_s[n]$, $y(nT)$) generated by sampling a second signal (y(t)) at a sub-Nyquist rate and at uniform intervals</u>, the method comprising: retrieving from said set of sampled values a set of shifts (t_n, t_k) and weights (c_n, c_{nr}, c_k) with which said first signal (x(t)) can be reconstructed" (emphasis added). Claims 22, 25, and 45 recite similar features.

A.   Claim 1 Preamble

In rejecting claim 1, the Office Action does not consider the feature "reconstructing a first signal (x(t)) from a set of sampled values ($y_s[n]$, $y(nT)$) generated by sampling a second signal (y(t)) at a sub-Nyquist rate and at uniform intervals," as recited in the preamble of claim 1, and contends, at page 5 of the Office Action, that "[t]he recitation in the preamble is not given patentable weight since the recitation recites the intended use of a structure and the body of claim does not depend on the preamble for completeness and the bodily limitations are able to stand alone." The Applicants respectfully traverse this contention as being incorrect as a matter of law.

It is established law that when a preamble of a claim provides more than just context for the claimed invention, that preamble should be given patentable weight. Indeed, when, as is the case here, the body of the claim expressly refers to features in a preamble and uses those referenced features to define the claimed invention, it is legal error not to give that preamble patentable weight.

Claim 1 recites "retrieving from <u>said set of sampled values</u> a set of shifts (t_n, t_k) and weights (c_n, c_{nr}, c_k)" (emphasis added). And, this "said set of sampled values" is expressly

17

defined by the claim 1 preamble as being "generated by sampling a second signal (y(t)) at a sub-Nyquist rate and at uniform intervals." Thus, the body of claim 1 expressly incorporates by reference the preamble feature of "a set of sampled values ($y_s[n]$, $y(nT)$) generated by sampling a second signal (y(t)) at a sub-Nyquist rate and at uniform intervals." In this way, the body of the claim depends on the preamble for completeness and gives life, meaning, and vitality to this claim. For this reason alone, the preamble of claim 1 should be afforded patentable weight. See MPEP 2111.02(II).

The preamble of claim 1, however, should be afforded patentable weight for another reason. The MPEP instructs that preambles that limit structure must be given patentable weight. See MPEP 2111.02(I). The incorporation by reference of the preamble feature of a set of sampled values "generated by sampling a second signal (y(t)) at a sub-Nyquist rate and at uniform intervals" defines a set of sampled values generated in a manner not found in the applied references. Thus, the preamble of claim 1 must be given patentable weight.

B. Miller Fails to Disclose or Suggest Claimed Features

The Applicants respectfully submit that Miller fails to disclose or suggest "reconstructing a first signal (x(t)) from a set of sampled values ($y_s[n]$, $y(nT)$) generated by sampling a second signal (y(t)) at a sub-Nyquist rate and at uniform intervals," as recited in amended claim 1 and similarly recited in claims 22, 25, and 45.

Miller, in col. 7, lines 55-65, discusses the "generation" of a wavelet, not its "reconstruction," as expressly recited in the claims. Equations (1) and (2), to which the Office Action refers for support, merely describe a sequence of received or transmitted pulses and a generic wavelet pulse function, respectively. When referring to demodulation of the wavelets, Miller, at col. 7, lines 44-46, merely states that "[d]emodulation occurs in the waveform

correlator 5 and the radio controller and interface 9 to recover to the original data stream."

Miller nowhere whatsoever suggests that the original data stream is demodulated or

reconstructed from a set of sampled values generated by sampling a second signal at a sub-

Nyquist rate and at uniform intervals, as expressly required by claims 1, 22, 25, and 45.

C.   Absar is Not Prior Art

The Office Action cites Absar in rejecting 14 and 17 under 35 U.S.C. §103(a). The

Applicants respectfully submit that the §103(a) rejection over Miller in view of Absar is

improper because Absar fails to qualify as a prior art reference.

The present Application is a continuation of Application No. PCT/EP02/03380, which

has a filing date of March 26, 2002. Furthermore, the present Application claims priority to

Application No. EP 01107530.6 filed March 26, 2001, and Application No. EP 01119537.7 filed

August 15, 2001.

As Absar has an international filing date of June 23, 2000 (i.e., prior to November 29,

2000), Absar's prior art date for purposes of §102(e)/§103(a) is the §371 (c)(1), (2), (4) date of

June 12, 2003, which is <u>later</u> than all of the above priority dates. As such, Absar fails to qualify

as a prior art reference.

D.   Claims 23-24

As the Office Action rejects claims 23-24 only under 35 U.S.C. §112 and §101, but not

under §102(e), and since claim 23 has been amended to obviate the §112 and §101 rejections of

claims 23-24, the Applicants respectfully submit that claim 23 and its dependent claim 24 define

patentable subject matter at least for this reason. For similar reasons, the Applicants respectfully

submit that new claims 46-49 define patentable subject matter.

III.   Conclusion

Accordingly the Applicants submit that claims 1, 22-23, 25, 45-46, and 48-49 define patentable subject matter. Claims 2-21, 24, 26-44, and 47 depend from claims 1, 23, 25, and 46, respectively, and therefore, also define patentable subject matter, as well as for the additional features recited therein.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-49 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number set forth below.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully Submitted,
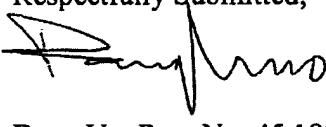
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